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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

TIEU, BINH KIEN

ART UNIT

PAPER NUMBER

2643

DATE MAILED: 04/10/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/413,694

Applicant(s)

PARK, TAE-SAN

Examiner

BINH K. TIEU

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 6,12 and 13 is/are allowed.
- 6) ☐ Claim(s) 1-5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over South et al. (U.S. Pat. #: 4,771,396) in view of Fujii et al. (U.S. Pat. #: 5,790,440).

Regarding claim 1, South et al. ("South") teaches an echo canceller, as shown in figure 2, comprising:

at least one adaptive filter (i.e., adaptive filters 25 and 26) for extracting at least one echo signal from speech signals (col.4, lines 4-23) and for calculating at least one power value of the speech signals (col.7, lines 42-44); and

at least one subtraction means for generating at least one error signal by subtracting the at least one echo signal from the speech signals (col.9, lines 30-42; col.10, lines 33-55).

It should be noticed that South fails to clearly teach at one update control means for updating at least one filter coefficient of the at least one adaptive filter in response to the at least one power value and the at least one error signal. However, Fujii et al. ("Fujii") teaches such features in col.21, line 61 – col.22, line 22 for a purpose of improving the convergence speed.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the at one update control means for updating at least one filter coefficient of the at least one adaptive filter in response to the at least one power value and the at least one error signal, as taught by Fujii, in order to obtain the desired echo cancellation.

Regarding claim 2, Fujii further teaches limitations of the claim in col.22, lines 18-19 and lines 44-49.

Regarding claim 3, Fujii further teaches limitations of the claim in col.23, lines 1-60.

Regarding claim 4, Fujii further teaches limitations of the claim in col.29, lines 41-53.

Regarding claim 5, Fujii further teaches limitations of the claim in col.21, line 66 – col.22, line 17.

3. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over South et al. (U.S. Pat. #: 4,771,396) in view of Fujii et al. (U.S. Pat. #: 5,790,440), and further in view of Muraoka (U.S. Pat. #: 6,185,301).

Regarding claim 7, South et al. (“South”) teaches an echo canceller, as shown in figure 2, comprising:

at least one adaptive filter (i.e., adaptive filters 25 and 26) for extracting at least one echo signal from speech signals (col.4, lines 4-23) and for calculating at least one power value of the speech signals (col.7, lines 42-44); and

at least one subtraction means for generating at least one error signal by subtracting the at least one echo signal from the speech signals (col.9, lines 30-42; col.10, lines 33-55).

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It should be noticed that South fails to clearly teach at one update control means for updating at least one filter coefficient of the at least one adaptive filter in response to the at least one power value and the at least one error signal. However, Fujii et al. ("Fujii") teaches such features in col.21, line 61 – col.22, line 22 for a purpose of improving the convergence speed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the at one update control means for updating at least one filter coefficient of the at least one adaptive filter in response to the at least one power value and the at least one error signal, as taught by Fujii, in order to obtain the desired echo cancellation.

It should be also noticed that South and Fujii, in combination, fails to clearly teach a selective means for generating at least one selective signal in response to the at least one power value of the speech signals. However, Muraoka teaches such selective means the filter selector 21 as shown in figure 5, col.6, line 46 – col.7, line 15 for a purpose of obtaining the update tap coefficients for desired echo cancellation.

Therefore, it would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate the use of the selective means, as taught by Muraoka, into view of South and Fujii in order to select tap coefficients as optimal tap coefficients for the desired echo cancellation.

Regarding claim 8, Fujii further teaches limitations of the claim in col.29, lines 41-53.

Regarding claim 9, Muraoka further teaches the adaptive filter control circuit 22 as shown in figure 5 operating as a logic circuit, note col.6, line 56 – col.7, line 15.

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Regarding claims 10 and 11, Muraoka further teaches limitations of the claims in col.6, lines 46-55 and col.6, line 65 – col.7, line 5.

Allowable Subject Matter

4. Claims 6 and 12-13 allowed.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hasegawa (U.S. Pat. #: 6,053,312) teaches an adaptive filter including a plurality of blocks, a plurality of filter circuit, an adder and a controller. The filter circuits variably set a filter coefficient on the basis of a reference signal, an error signal representing a difference between a filter output and an output from a system to be estimated, and a constant, and output the calculation results of the set filter coefficients to be updated and the reference signal. The controller controls a connection operation of the matrix switch on the basis of each filter coefficient set in the filter circuit.

Flanagan et al. (U.S. Pat. #: 6,009,083 and 5,815,496) also teaches cascade adaptive filters echo canceler arrangement in order to track rapid changes in the echo signals.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Binh K. Tieu whose telephone number is (703) 305-3963 and E-mail address: BINH.TIEU@USPTO.GOV.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz, can be reached on (703) 305-4708 and **IF PAPER HAS BEEN MISSED FROM THIS OFFICIAL ACTION PACKAGE, PLEASE CALL Customer Service at (703) 306-0377 FOR THE SUBSTITUTIONS OR COPIES.**

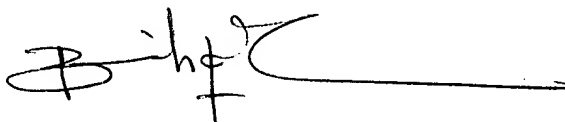
Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).



**BINH TIEU
PRIMARY EXAMINER**

Art Unit 2643

Date: April 04, 2003

Attachment for PTO-948 (Rev. 03/01, or earlier)
6/18/01

The below text replaces the pre-printed text under the heading, "Information on How to Effect Drawing Changes," on the back of the PTO-948 (Rev. 03/01, or earlier) form.

INFORMATION ON HOW TO EFFECT DRAWING CHANGES

1. Correction of Informalities -- 37 CFR 1.85

New corrected drawings must be filed with the changes **incorporated** therein. Identifying indicia, if provided, should include the title of the invention, inventor's name, and application number, or docket number (if any) if an application number has not been assigned to the application. If this information is provided, it must be placed on the front of each sheet and centered within the top margin. If corrected drawings are required in a Notice of Allowability (PTOL-37), the new drawings **MUST** be filed within the **THREE MONTH** shortened statutory period set for reply in the Notice of Allowability. Extensions of time may **NOT** be obtained under the provisions of 37 CFR 1.136(a) or (b) for filing the corrected drawings after the mailing of a Notice of Allowability. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

2. Corrections other than Informalities Noted by Draftsperson on form PTO-948.

All changes to the drawings, other than informalities noted by the Draftsperson, **MUST** be made in the same manner as above except that, normally, a highlighted (preferably red ink) sketch of the changes to be incorporated into the new drawings **MUST** be approved by the examiner before the application will be allowed. No changes will be permitted to be made, other than correction of informalities, unless the examiner has approved the proposed changes.

Timing of Corrections

Applicant is required to submit the drawing corrections within the time period set in the attached Office communication. See 37 CFR 1.85(a).

Failure to take corrective action within the set period will result in **ABANDONMENT** of the application.